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## Phonological inventories of seven Jingphoish languages and dialects\*

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### 1 Introduction

The Jingphoish<sup>1</sup> languages are Tibeto-Burman languages spoken in northern Burma and adjacent areas of China and India. Genetically, they belong to the Jingpho-Asakian (Jingpho-Luish) branch of Tibeto-Burman (Matisoff 2013). While the exact number of Jingpho speakers is unknown due to a lack of accurate census data, estimates range between 630,000 (Bradley 1996) and 940,000 (Lewis et al. 2014). The Jingpho, together with such peoples as the Lhaovo, Lachid, Zaiwa, Rawang and Lisu, form an ethnic group in Burma called the “Kachin”. Although the standard dialect of Jingpho is widely used by both native and non-native speakers, many of the other Jingphoish languages and dialects are in danger of disappearing due to speakers shifting to the dominant languages in the area, such as Standard Jingpho, Burmese in Burma, Chinese in China and Assamese in India.

This paper provides the phonological inventories and syllable structures of seven Jingphoish languages and dialects from northern Burma, southwestern China and northeastern India. We will also provide some accounts of how the modern phonological inventories of

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<sup>1</sup> Although I previously used the term “dialects” to refer to the languages and dialects described in this paper, it may be more appropriate to treat some of them as distinct languages since the mutual intelligibility between them is sometimes quite limited. This paper thus tentatively uses the term “Jingphoish” to refer to all the Jingpho languages and dialects presented in this paper. A similar treatment can be seen in Matisoff (2013), in which they are termed “Jingphoic”. A similar term, “Jingpoish”, is also found in Shintani (2014), but it includes not only the Jingphoish languages and dialects treated in this paper, but also Luish languages such as Kadu (Professor Tadahiko Shintani, personal communication).

these languages and dialects, especially consonants and vowels, have been derived from that of their ancestor. Some notes on tone will also be presented, although a diachronic consideration of tone is still being undertaken.

The data on Standard Jingpho, Gauri, Duleng and Dingga are based on primary data collected during my field research in northern Burma. The data on the other Jingphoish languages and dialects are secondary data taken from previous studies: Nkhum (Xu et al. 1983, Dai 2012), Numphuk (Morey 2007b, 2008, 2010b), Turung (Morey 2007a, 2010a) and Jilí (Brown 1837). The data on Proto-Tibeto-Burman (PTB), Proto-Luish (PL) and Shan are from Matisoff (2003), Huziwara (2012) and Moeng (1995), respectively, unless noted otherwise.

The rest of this paper is organized as follows. Section 2 provides a brief introduction to Jingphoish languages/dialects, their classification and previous studies on them. Sections 3 through 9 present the phonological inventories and syllable structures of Standard Jingpho, Nkhum, Gauri, Duleng, Dingga, Numphuk and Turung, respectively. For each language/dialect, diachronic explanations are also provided.

## 2 Jingphoish languages and dialects

### 2.1 Geographical setting

Jingphoish speakers stretch from northeastern India through northern Burma into southwestern China, lying to the north of the equator approximately between the 23rd and 27th degrees of north latitude and the 93rd and 98th degrees of east longitude. Jingphoish consists of at least sixteen distinct languages and dialects,<sup>2</sup> including the extinct Jilí which was spoken in the early 1800s (Brown 1837), as reported by Hanson (1896), Leach (1954), Nishida (1960), Liu ed. (1984), Matisoff ed. (1996), Morey (2010a) and Kurabe (2014),

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<sup>2</sup> This list is not intended to be exhaustive and it is possible that unknown Jingphoish languages and dialects will be identified through further investigation. Dingga and Shang, for instance, were not known in Tibeto-Burman studies until recent years (Kurabe 2013a). Early English writings also report on some varieties of Jingpho which are not included in the list since there are no linguistic data available for them. Hanson (1913:31) reports that there is a Chin group whose language may belong to Kachin (Jingpho), noting that “The dialect of the Lākai Chins to the north-west of the Hukong valley may be regarded as a branch of Kachin, but they call themselves Chins, (Hkang).” It is also of great interest what kinds of languages were spoken by such Jingpho groups as the Khaphok, Khalang, Nogmung, N’Tit and Pangsu, who were reported to have been absorbed by the Shans in previous studies (see footnote 10).

among others. They are abbreviated as listed below in this paper. The languages/dialects treated in this paper are in boldface.

**Abbreviations of the Jingphoish languages/dialects**

<b>DG</b> = <b>Dingga</b>	<b>KK</b> = <b>Khakhu</b>	<b>TI</b> = <b>Tieng</b>
<b>DL</b> = <b>Duleng</b>	<b>NK</b> = <b>Nkhum/Enkun</b>	<b>TN</b> = <b>Thingnai</b>
<b>DP</b> = <b>Dingphan</b>	<b>NP</b> = <b>Numphuk</b>	<b>TR</b> = <b>Turung</b>
<b>DY</b> = <b>Diyun</b>	<b>SD</b> = <b>Shadan</b>	<b>TS</b> = <b>Tsasen</b>
<b>GR</b> = <b>Gauri/Khauri</b>	<b>SH</b> = <b>Shang</b>	
<b>JL</b> = <b>Jili</b>	<b>SJ</b> = <b>Standard Jingpho</b>	

Figure 1 shows the geographical distribution of the modern Jingphoish languages and dialects. Notice that the center of gravity of the Jingpho distribution is located in northern Burma. That is to say, eleven out of fifteen of the modern Jingphoish languages/dialects are concentrated in the northern part of Burma, especially in Kachin State.

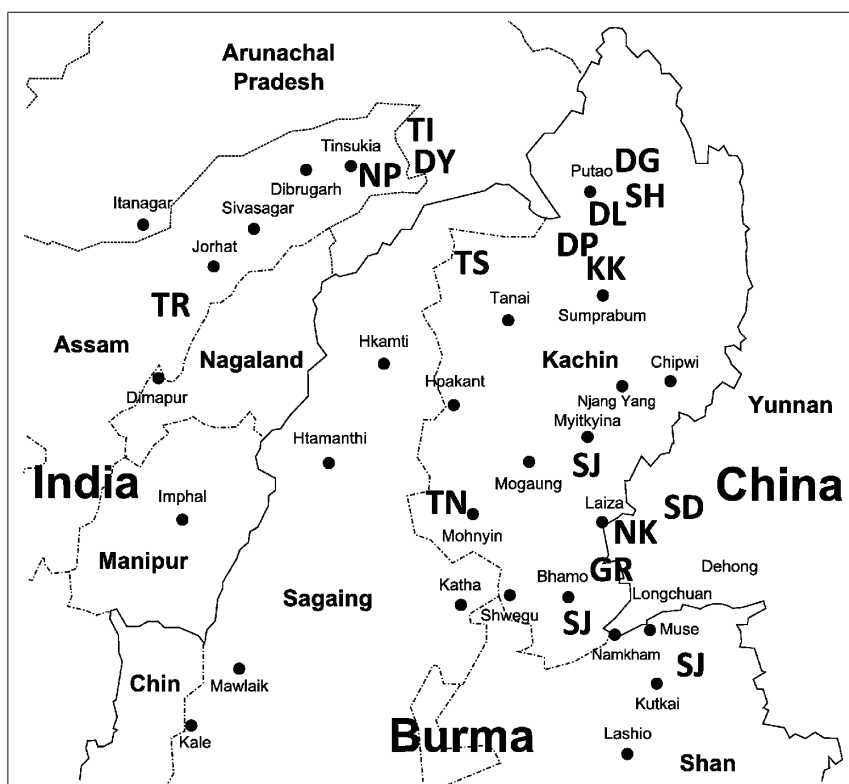


Figure 1 The geographical distribution of the Jingphoish languages and dialects

## 2.2 Classification

Figure 2 shows a classification of the seven Jingphoish varieties treated in this paper:

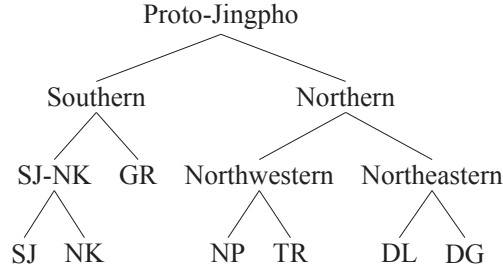


Figure 2 A classification of the seven Jingphoish languages/dialects

The Jingphoish languages and dialects are primarily divided into a Southern and a Northern group. One of the defining characteristics of the Southern group, which includes Standard Jingpho, Nkhum and Gauri, is that they share an irregular phonological innovation in which the final stop *\*-k* of Proto-Jingpho (PJ) was lost in some phonologically and semantically unrelated lexical items, such as ‘guts’, ‘phlegm’, ‘gold’, ‘husk of rice’, ‘fly’, ‘sap’, ‘to sweep’, ‘to tear’, ‘to spit’, ‘to pull out’, ‘to be soft’ and ‘to be high’. Compare, for instance, the words for ‘to sweep’ in the Southern group (SJ *yé*, NK *jé*, GR *wé*) with those in the Northern group (DL *wèʔ*, DG *wik*, NP *weʔ<sup>3</sup>*, TR *weʔ<sup>1</sup>*) as well as with that in PTB *\*py(w)ak* SWEEP.

The Northern group, on the other hand, is defined by four phonological innovations which are shared by all members; namely, the mergers of *\*ts-* and *\*c-*, *\*ɬ-* and *\*j-*, *\*ʔy-* and *\*∅* (before front vowels), and *\*plain* and *\*preglottalized* sonorants (for more details, see Sections 6 through 9). Kurabe (2013b, 2014) provides the evidence for further sub-classification of the Jingphoish languages and dialects.

## 2.3 Previous studies

The synchronic phonologies of Standard Jingpho, Nkhum and Turung have been described and discussed to a considerable extent in previous studies (see Hanson 1896, Nishida 1960, Burling 1971, Maran 1971 and Matisoff 2013, among others, for Standard Jingpho, Anonymous 1959, Xu et al. 1983, Liu ed. 1984, Dai and Xu 1992 and Dai 2012, among others, for Nkhum, and Morey 2005, 2010 for Turung). The synchronic

phonologies of Gauri, Duleng and Numphuk have also been described to some extent (see Kurabe forthcoming, Yue 2006 and Morey 2010b, respectively). Although these studies reveal many aspects of the synchronic phonologies of individual Jingphoish languages and dialects, there are no previous studies which summarize them.

This paper is also different from previous studies in that it provides a diachronic account of how the differences in the synchronic phonological systems among these Jingphoish varieties have developed historically. Diachronic studies of the phonological systems of the Jingphoish languages and dialects are undertaken less often, although there are some studies which note phonological correspondences between some Jingphoish languages/dialects. Hanson (1896:6–7), for example, provides some phonological correspondences between Standard Jingpho and Gauri, revealing such correspondences as SJ *hk-* vs. GR *kh-*, SJ *hp-* vs. GR *pf-*, SJ *-y-* vs. GR *-r-* and SJ  $\emptyset$  vs. GR *-ng*. Liu ed. (1984:2–4) provides a brief description of phonological correspondences between Nkhum and Shadan, giving such correspondences as NK  $\emptyset$  vs. SD *-ŋ* and NK creaky vowels with high tone vs. SD plain vowels with rising tone. Morey (2008:34–42) discusses tonal correspondences between Standard Jingpho, Numphuk and Turung, noting the complexity of the correspondences. Morey (2010a:85–7) points out some correspondences between Turung, Nkhum and Standard Jingpho, noting such correspondences as TR voiced obstruents vs. NK voiceless obstruents, TR *r-* vs. NK  $\zeta$ -, TR plain sonorants vs. SJ preglottalized sonorants, SJ voiced obstruents vs. NK voiceless obstruents, and SJ plain vowels vs. NK creaky vowels. Yue (2006:68) provides some correspondences between Duleng and Nkhum, noting such correspondences as DL *tf-* vs. NK *ts-*, DL *f-* vs. NK *s-*, and DL *l-* vs. NK  $\zeta$ -.

### 3 Standard Jingpho

Standard Jingpho is primarily spoken in and around Myitkyina (ca. 25°23'N, 97°24'E), Bhamo (ca. 24°16'N, 97°14'E), Kutkai (ca. 23°27'N, 97°56'E) and Namhkam (ca. 23°49'N, 97°40'E), the former two being located in Kachin State, and the latter two in northern Shan State, Burma. Standard Jingpho appears to have formerly been distributed around Bhamo and spread to the north into areas such as Myitkyina, Waingmaw and Laiza, and the south into areas such as Namhkam, Namhpatkar, Hsenwi, Kutkai and Lashio. Standard Jingpho is sometimes called the Manmaw (Bhamo) dialect or the Manmaw-Sinli (Bhamo-Hsenwi) dialect by Jingpho speakers.

Although Standard Jingpho is generally uniform, some minor variation can be found.

The younger generation speakers, for instance, tend to pronounce /ts/ and /dʒ/ as [s] and [z], contrasting them with /s/ [s<sup>h</sup>]. Note also that Standard Jingpho as spoken in Shan State has a tendency to make frequent use of the meaningless prefix ʔə- to change monosyllabic words into disyllabic ones. Monosyllabic words such as *gà* ‘earth’, *num* ‘female’, *káʔ* ‘basket’ and *jùm* ‘salt’ are thus frequently pronounced as ʔəgà, ʔənum, ʔəkáʔ and ʔəjùm in colloquial speech. This variety is also notable in that it puts an interrogative particle ʔi before verbs, as in ʔi ce (lit. Q know) ‘Do you know it?’, while the same particle occurs after verbs in Standard Jingpho as spoken in Myitkyina, as in ce ʔay ʔi (lit. know NMLZ Q). As can be expected, Standard Jingpho as spoken in Shan State has more loanwords from Shan, such as *thàŋ* ‘to think’ (from Shan *t<sup>h</sup>aay<sup>2</sup>*; ultimately from Burmese). Jingpho speakers in Myitkyina often say that the Jingpho of Shan State is “soft”.

The Jingpho orthography devised by Olaf Hanson is based on Standard Jingpho. This orthography does not mark tones or glottal stops. A Jingpho consultant gave me the sentence below, which will be written as *na na na na na na na na* in the Jingpho orthography.

- (1) ʔna náʔ ná na náʔnáʔ      nà na.  
 sister your GEN ear for.a.long.time hear IRREALIS  
 ‘Sister, your ears will hear for a long time.’

### 3.1 Syllable structure

The canonical syllable structure of Standard Jingpho can be represented as  $C_1(C_2)V(C_3)/T$ , where  $C_1$  represents an obligatory initial consonant,  $C_2$  an optional medial consonant,  $V$  an obligatory nuclear vowel,  $C_3$  an optional final consonant, and  $T$  an obligatory tone. All consonant phonemes can occur as  $C_1$  when  $C_2$  is not filled. Complex onsets ( $C_1C_2$ ) may consist of a stop (bilabial, velar) or nasal (bilabial, alveolar) plus /r/ or /y/.<sup>3</sup> Possible onset clusters are thus: /pr, br, phr, kr, gr, khr, py, by, phy, ky, gy, khy, my, ny, ʔmy, ʔny/. Possible coda consonants ( $C_3$ ) are: /p, t, k, ʔ, m, n, ŋ, w, y/. Stops and nasals are not released in coda position. Four falling diphthongs, namely, *ui*, *oi*, *ai* and *au*,

<sup>3</sup> Most initial consonants take a medial /y/ when followed by front vowels /i/ or /e/, as in *pyi* ‘even’, *pyen* ‘to fly’, *myiʔ* ‘eye’ and *ʔnyip* ‘to wilt’. We do not consider this medial /y/ to be inserted by a phonetic rule, however, since there are minimal or near-minimal pairs distinguished only by the presence of the medial /y/, as is demonstrated by such pairs as *phéʔ* ‘ACCUSATIVE’ vs. *phyéʔ* ‘to be wounded’, *gin* ‘how’ vs. *gyin* ‘plants of the Cucurbitaceae family’, and *ní* ‘day’ vs. *ʔnyí* ‘to defecate’, although such pairs are scarce.

can be interpreted phonologically as sequences of a vowel plus a final glide, i.e. /uy/, /oy/, /ay/ and /aw/, respectively, since diphthongs never occur in closed syllables. This interpretation results in a system in which no diphthongs are postulated phonologically.

### 3.2 Consonants, vowels and tones

The segmental inventory of Standard Jingpho is provided in Table 1. Standard Jingpho has thirty-one consonant phonemes and six vowel phonemes, as well as four tonemes in open and two in closed syllables. (High-S and Low-S in Table 1 indicate High-stopped and Low-stopped, respectively.)

Table 1 Phonological inventory of Standard Jingpho

	consonants					vowels		
voiceless unaspirated stops	p	t	k	ʔ	High	i		u
voiced stops	b	d	g		Mid	e	ə	o
voiceless aspirated stops	ph	th	kh		Low		a	
voiceless affricates		ts	c					
voiced affricates		dz	j					tones
voiceless fricatives		s	ɕ	(h)	High	má		
plain nasals	m	n	ɲ		Mid	ma		
preglottalized nasals	ʔm	ʔn	ʔɲ		Low	mà		
plain liquids		l	r		Falling	mâ		
preglottalized liquids		ʔl	ʔr		High-S	máp		
plain glides	w		y		Low-S	màp		
preglottalized glides	ʔw		ʔy					

The consonant /h/ is marginal, appearing in loanwords, interjections or onomatopoeic words. Hanson (1906) lists only four words beginning with /h/. The fact that Shan [h] is largely borrowed into Standard Jingpho as [k<sup>h</sup>], as in *khòŋ* ‘ditch’ (Shan *hɔŋ*<sup>3</sup> ‘rivulet, gully’), *khoy* ‘shellfish’ (Shan *hɔj*<sup>1</sup>), and *khokhám* ‘king’ (Shan *k<sup>h</sup>un*<sup>1</sup> *hɔ*<sup>1</sup> *k<sup>h</sup>am*<sup>4</sup>), also indicates its marginality. The falling tone is also marginal, but it can be shown to be phonemic since there are some minimal pairs distinguished by tones involving it. Note also that there are some co-occurrence restrictions regarding onsets and vowels. Onset /ɲ/, for instance, does not occur before front vowels, and onset /w/ does not occur before



front vowels, except in the case of loanwords and interjections (see below).

Standard Jingpho appears to have retained the segmental inventory of the proto-language quite well, preserving such contrasts as those between voiceless and voiced obstruents, alveolar and alveolo-palatal affricates, alveolar and alveolo-palatal fricatives, plain and preglottalized sonorants, and lateral and retroflex approximants, some of which have merged in some varieties, especially in the Northern group (Sections 6 through 9).

It should be noted, however, that Standard Jingpho has also undergone some minor modifications to the proto-segments. As noted in Benedict (1972:14), for example, the PTB final stop *\*-k* is generally reflected in Standard Jingpho as *-ʔ*. The final *\*-k* is reconstructable at the Proto-Jingpho stage since some Jingphoish languages such as Dingga, Shang and Jilí retain *\*-k* as *-k*. Compare the words for ‘pig’: SJ *wàʔ*, DG *wàk*, SH *wàk*, JL *tawak* (PTB *\*p<sup>w</sup>ak* PIG).<sup>4</sup> Note that many words with a final *-k* in modern Standard Jingpho are loanwords from Shan or Burmese (Matisoff 1974:157), such as SJ *kók* ‘small bottle’, SJ *mùk* ‘bread’ and SJ *sàkse* ‘witness’, the former two of which are from Shan *k<sup>h</sup>ɔk<sup>4</sup>* ‘cup’ and Burmese *môun* ‘bread’, respectively, and the latter from Burmese *θɛʔθè* ‘witness’ (cf. Written Burmese *sakse*) through Shan *s<sup>h</sup>aak<sup>3</sup>s<sup>h</sup>e<sup>2</sup>*.

Note also that PJ *\*w-* has developed into *y-* before front vowels in Standard Jingpho, as in SJ *yì* ‘female’ (PTB *\*pwi(y)-n*), as discussed in Kurabe (2014), and that sequences *we* and *wi* only occur in loanwords or interjections, such as SJ *wéʔwu* ‘screw’ (Burmese *wɛʔʔù*), SJ *wé-nyi* ‘spirit’ (Burmese *wèinɲìn*), SJ *weláʔŋá* ‘whale’ (Burmese *wèlàná*), SJ *wíŋ* ‘enclosure’ (Shan *wɛŋ<sup>4</sup>* ‘town’), SJ *dawíʔ* ‘David’ (English *David*) and SJ *wí* ‘INTJ’. PJ *\*w-* before front vowels remains unchanged in Gauri, Duleng, Dingga, Numphuk and Turung, as can be seen in ‘female’: GR *wì*, DL *wù*, DG *wì*, NP *wii<sup>1</sup>* and TR *wii<sup>3</sup>*.

PJ medial *\*-r-* is generally preserved as such in Standard Jingpho, but it has sporadically become *-y-* in specific lexical items, such as SJ *phún-pyen* ‘plank’ (PTB *\*pleŋ* FLAT SURFACE / PLANK) and SJ *pyo* ‘to delight’ (PTB *\*pro* DELIGHT).<sup>5</sup> In some cases, PJ

<sup>4</sup> Although it would be ideal to compare given forms from modern Jingphoish languages with those of Proto-Jingpho, this paper compares given forms with those from modern Jingphoish languages which preserve the relevant proto-phonemes well since there are no previous studies which reconstruct the Proto-Jingpho forms. The forms from Standard Jingpho are especially used for comparison in the following sections since Standard Jingpho retains the proto-phonemes relatively well, and copious data of it are also available.

<sup>5</sup> The two medial liquids of PTB, *\*-l-* and *\*-r-*, have largely merged into the liquid *-r-* in Standard Jingpho (Matisoff 2003:72 note 105) as well as in all the other modern Jingphoish languages and dialects known to date.

medial \*-r- is preserved in Gauri, as in GR *fún-pren* ‘plank’ and GR *pro* ‘to delight’.

Finally, note that, although Standard Jingpho normally preserves PJ velar codas \*-k and \*-ŋ as -ʔ and -ŋ, they have been lost in a small number of specific lexical items,<sup>6</sup> such as *jà* ‘gold’ (PTB \**tsyak* RED / BLOOD / GOLD), *məkhá* ‘phlegm’ (PTB \**ka:k* PHLEGM), *yé* ‘to sweep’ (PTB \**py(w)ak* SWEEP), *jé* ‘to tear’ (PL \**sék* TEAR), *tsò* ‘to be high’ (PL \**cók* LONG / TALL), *gùmrà* ‘horse’ (PTB \**s/m-ra-ŋ* HORSE), *ɕəro* ‘tiger’ (PTB \**s/k-roŋ* CAT / WILDCAT), *ləgo* ‘foot’ (PTB \**r-kwa(ŋ)* FOOT from STEDT #5621), *ɲra* ‘bone’ (PTB \**g-r(w/y)a(ŋ/k)* BONE from STEDT #238) and *siŋko* ‘wing’ (PTB \**k(w)aŋ* ARM / WING from STEDT #238). These PJ final velars have been well preserved in the Northern group, as shown by the following representative examples: DG *jèk* ‘gold’, DG *məkhàk* ‘phlegm’, DG *wik* ‘to sweep’, DG *jék* ‘to tear’, DG *cùk* ‘to be high’, DL *gùmlàŋ* ‘horse’, DL *ɕəluŋ* ‘tiger’, DL *ləguŋ* ‘foot’, DL *gìnlàŋ* ‘bone’ and DL *ɕiŋkúŋ* ‘wing’.

## 4 Nkhum

The Nkhum-speaking population lives in Tongbiguan (ca. 24°36’N, 97°39’E), Yingjiang county, Dehong Dai-Jingpo autonomous prefecture, Yunnan province, China. There are also some speakers of Nkhum in Lianghe, Ruili, Longchuan, and Luxi counties (Liu ed. 1984:2). It is the primary Jingphoish language/dialect spoken in China. The name Nkhum is related to a Jingpho clan name, Nkhum, which designates one of the five ruling families among the Jingpho. Hanson (1913:25) describes the Nkhums as follows: “The *Nkhums* are scattered all along the Chinese frontier....They have a number of villages in the Mogaung district, some east of Bhamo, and are fairly numerous in North Hsenwi, particularly in the Mong Baw circle. Their earliest home seems to have been west of the Irrawaddy around the Kamhti valley.” Nkhum has been well described and documented by Chinese scholars, as in Anonymous (1959), Xu et al. (1983), Liu ed. (1984), Dai and Xu (1992), and Dai (2012), among others.

The description provided below is based on Xu et al. (1983) and Dai (2012). Studies by Chinese scholars describe Nkhum using phonetic symbols or the Jingpho orthography of

<sup>6</sup> This characteristic of Standard Jingpho has already been noticed in part by Matisoff. Matisoff (2003:323, 2013:47) provides such comparisons as Garo *gittsək* ‘red’ vs. SJ *džà* ‘gold’, Kadu *púk* ‘belly’ vs. SJ *pù* ‘guts’, Sak *pəcíʔ* ‘mosquito’ vs. SJ *mətší* ‘fly’, and Sak *yáʔhóʔ* ‘husk’ vs. SJ *núm-khó* ‘husk’. The variation  $\emptyset \sim -ŋ$  is also noted in Hanson (1896:7), Benedict (1972:43 #145, 51 #223) and Matisoff (2003:155 note 172, 330). Matisoff provides such examples as ‘horse’ SJ *gùmrà* vs. GR *gùmràŋ* and ‘to know’ SJ *tšē* vs. GR *tšēŋ*.

China. The description below adopts the phonetic representation used by Xu et al. (1983) and Dai (2012). As a rule, the phonetic symbols used in these studies correspond well to phonemes. The creaky/constricted vowels indicated by underlines in previous studies are represented by a subscript tilde as in the IPA in this paper.

#### 4.1 Syllable structure

The canonical syllable structure of Nkhum can be represented as  $C_1(C_2)V(C_3)/T$ . The initial consonant clusters ( $C_1C_2$ ) can be summarized as follows: [pɜ, phɜ, kɜ, khɜ, pj, phj, kj, khj, mj, ɲj]. The optional coda consonant ( $C_3$ ) can be any of the following: [p, t, k, ʔ, m, n, ɲ]. Phonetic diphthongs can be shown to be sequences of a vowel plus a glide phonologically, as in Standard Jingpho, since they never occur in closed syllables.

#### 4.2 Consonants, vowels and tones

The phonetic inventory of Nkhum is provided in Table 2. Nkhum has twenty-two consonants,<sup>7</sup> ten vowels,<sup>8</sup> four contrastive tones in open syllables and two contrastive tones in closed syllables (Dai 2012:16–8). The consonants [f], [tsh] and [tʃh] are newly introduced consonants, occurring only in loanwords from Chinese (Dai 2012:16), such as *fen*<sup>33</sup> ‘minute’ (Chinese *fūn*), *tshun*<sup>33</sup> ‘inch’ (Chinese *cùn*) and *tʃhaŋ*<sup>31</sup>*kjaŋ*<sup>33</sup> ‘Changjiang River’ (Chinese *chángjiāng*). Xu et al. (1983) lists only one word beginning with [f] and four beginning with [x]. It lists no words beginning with [tsh] or [tʃh].

Nkhum does not have voiced obstruents, and all of the voiced obstruents in Standard Jingpho correspond to voiceless ones in Nkhum, as in NK *po*<sup>33</sup> ‘head’ (SJ *bo*). Voiceless obstruents in Standard Jingpho, on the other hand, correspond to voiceless obstruents followed by creaky/constricted vowels in Nkhum, as in NK *kə*<sup>33</sup> ‘to write’ (SJ *ka*). One interpretation is that the original voiceless obstruents caused the vowels following them to become creaky, after which voiced obstruents were devoiced. It is also possible, however, that the correspondence between Nkhum and Standard Jingpho is simply a matter of phonemic interpretation, since in Standard Jingpho, too, vowels preceded by voiceless obstruents are sometimes pronounced creaky by some speakers.

<sup>7</sup> Although Dai (2012:16) lists consonant clusters in the inventory, we treat them separately in this paper in order to maintain consistency with the other languages and dialects.

<sup>8</sup> Two vowels, *ǎ* and *ǣ*, are treated as reduced syllables in Dai (2012), although we treat *ə* as a distinct vowel in Standard Jingpho, Gauri, Duleng, Dingga, Numphuk and Turung, since its occurrence is not always predictable in those languages.

Table 2 Phonetic inventory of Nkhum

	consonants					vowels	
voiceless unaspirated stops	p	t		k ʔ	High	i, i̥	u, u̥
voiceless aspirated stops	ph	th		kh	Mid	e, e̥	o, o̥
voiceless affricates		ts	tʃ		Low		a, ḁ
voiceless aspirated affricates		(tsh)	(tʃh)				
voiceless fricatives	(f)	s	ʃ	(x)			
voiced fricative			ʒ				
nasals	m	n		ɲ		tones	
liquid		l			High	ma <sup>55</sup>	
glides	w		j		Mid	ma <sup>33</sup>	
					Low	ma <sup>31</sup>	
					Falling	ma <sup>51</sup>	
					High-S	map <sup>55</sup>	
					Low-S	map <sup>31</sup>	

Note also that preglottalized sonorants in Standard Jingpho correspond to plain sonorants followed by creaky/constricted vowels in Nkhum, as in NK *yɛn*<sup>33</sup> ‘to peel’ (SJ *ʔyen*). One possibility is that the PJ preglottalized sonorants caused following vowels to become creaky, after which they became plain sonorants. It could, however, also be a matter of phonemic interpretation.

The liquid /r/ in Standard Jingpho, which is realized as [ɹ] ~ [ɹ̥], corresponds to a voiced fricative [ʒ] in Nkhum, as in NK *ʒaɹ*<sup>31</sup> ‘to like’ (SJ *ràʔ*) and NK *khʒa*<sup>55</sup> ‘right’ (SJ *khra*). One way to account for this is to posit that PJ liquid \*r- has developed into [ʒ] in Nkhum. The reverse direction is also possible, but less likely, since PJ \*r- is reflected as a liquid in the other Jingphoish languages and dialects treated in this paper.

As is the case with Standard Jingpho, the PJ final stop \*-k is normally reflected in Nkhum as [ʔ], as in NK *taɹ*<sup>31</sup> ‘to weave’ (DG *dàk*, PTB \**tak* ≠ \**dak*) and in NK *ʃúɹ*<sup>55</sup> ‘breast’ (DG *cúk*, PTB \**tsyuk* ≠ \**ɕyuk*). Nkhum also shares with Standard Jingpho such phonological innovations as PJ \*w- > [j] before front vowels (Kurabe 2014), PJ \*-r- > [j] (sporadic), PJ \*-k > ∅ (sporadic), and PJ \*-ŋ > ∅ (sporadic), as can be seen in NK *jí*<sup>31</sup> ‘female’ (GR *wì*, PTB \**pwi(y)-n* FEMALE), NK *phun*<sup>55</sup> *pjɛn*<sup>33</sup> ‘plank’ (GR *fún-pren*,

PTB \**pleŋ* FLAT SURFACE / PLANK), NK *tʃa*<sup>31</sup> ‘gold’ (DG *jèk*, PTB \**tsyak* RED / BLOOD / GOLD) and NK *khje*<sup>33</sup> ‘to be red’ (DG *hiŋ*, PTB \**kyeŋ* RED / BLUSHING).

Finally, note that SJ /ny/ [ɲ] regularly corresponds to NK [ɲj], as can be seen in NK *ɲjap*<sup>31</sup> ‘to be soft and paste-like’ (SJ *?nyàp*, PTB \**s-nap* SNOT / NASAL MUCUS). This correspondence can be shown to have been derived from the PJ cluster \**ɲy-* on the basis of the following observations: (a) the sound change PJ \**ɲy-* > *ny-* is more natural since it can be explained in terms of assimilation; (b) the genitive form of the first person singular pronoun in Standard Jingpho is *nyé?* (cf. NK *ɲje?*<sup>55</sup>) although it originates from a coalescence of *ɲay* ‘1SG’ plus *?à?* ‘GENITIVE’ (as follows: \**ɲay ?a?* > \**ɲəya?* > \**ɲya?* > \**ɲye?* > *nyé?*); (c) nasals which constitute consonant clusters in Standard Jingpho are bilabial /m/ or alveolar /n/ while stops which form consonant clusters are bilabial (/p, b, ph/) or velar (/k, g, kh/). This asymmetry can be accounted for when we assume that the consonant cluster /ny/ in Standard Jingpho has diachronically been derived from \**ɲy-*.

## 5 Gauri

The Gauri-speaking population is concentrated in hill tracts east of Bhamo, known as the Gauri hills, in Burma. According to my consultant, the Gauri speaking villages in Burma include: Prang Hkudung, Man Dau, Hkarawm Kawng, Manda, Ka Daw, Lamai Bang, Bum Wa, Ma Htang, Jahkai and Loi Ming. Among these, Prang Hkudung is the largest Gauri village; it is situated to the north of ca. 24°22’ North latitude and to the east of ca. 97°31’ East longitude, about 31 linear kilometers east of Bhamo. Note also that the region where Gauri is spoken is located in the Burma-China frontier area and that it is also spoken in the Longchuan and Yingjian counties of the Dehong Dai-Jingpo autonomous prefecture, Yunnan province, although the Gauri-speaking population in China numbers only a few dozen people (Liu ed. 1984:2). Enriquez (1923:127), speaking about the Gauris in Burma, notes that “The Gauri country was occupied originally by Shans. The Gauris, in fact, claim to have been in possession for only seven generations. The grave of their *Duwas* [chiefs] seem, by their number, to confirm this.”

Alternate names for Gauri include Kowrie (Cushing 1880), Cowrie (Hanson 1896), Kaori (Scott 1900) and Hkauri (Hanson 1906). Although Hanson (1906:172) notes that Gauri is generally pronounced *Hkauri*, speakers of modern Gauri as well as those of Standard Jingpho only call them Gauri /gàurì/.

Gauri has been known since the work of Olaf Hanson in the late 1800s and early 1900s (Hanson 1896, 1906, 1907, 1913). Hanson (1906) is an important work on Gauri since

it includes about 300 items of Gauri vocabulary, mostly non-basic words, although tones, preglottalized sonorants and glottal stops are not indicated in the transcription.

### 5.1 Syllable structure

The basic syllable structure of Gauri allows up to two prenuclear consonants and one postnuclear consonant, so that the maximal syllable is  $C_1C_2VC_3$  plus a tone. Complex onsets ( $C_1C_2$ ) may consist of a stop (bilabial, velar), fricative (labiodental, velar) or nasal (bilabial, alveolar) plus /r/ or /y/. The possible consonant combinations can be summarized as follows: /pr, br, kr, gr, fr, hr, py, by, ky, gy, fy, hy, my, ny, ʔmy, ʔny/. The set of consonants which can appear in coda position is as follows: /p, t, k, ʔ, m, n, ŋ, w, y/.

### 5.2 Consonants, vowels and tones

Gauri has thirty consonant phonemes, six vowel phonemes, four tonemes in open syllables and two tonemes in closed syllables, as listed in Table 3.

Table 3 Phonological inventory of Gauri

	consonants				vowels		
voiceless unaspirated stops	p	t	k	ʔ	High	i	u
voiced stops	b	d	g		Mid	e	ə
voiceless aspirated stop		th			Low	a	
voiceless affricates		ts	c				
voiced affricates		ɖ	j				tones
voiceless fricatives	f	s	ɕ	h	High	má	
plain nasals	m	n		ŋ	Mid	ma	
preglottalized nasals	ʔm	ʔn		ʔŋ	Low	mà	
plain liquids		l	r		Falling	mâ	
preglottalized liquids		ʔl	ʔr		High-S	máp	
plain glides	w		y		Low-S	màp	
preglottalized glides	ʔw		ʔy				

Note that initial /y/ does not occur before front vowels, except in the case of onomatopoeic words, interjections or syllables derived through morpho-phonological processes such as sandhi; e.g. /dì/ ‘egg’ plus /ʔì/ ‘LOCATIVE’ becomes [dìyì]. Many of the

falling tones in Standard Jingpho correspond to high tones in Gauri, as in GR *ńtá* ‘house’ (cf. SJ *ńtā*).

As discussed in Kurabe (forthcoming), Gauri has a similar phonemic inventory to Standard Jingpho. One of the notable differences between Gauri and Standard Jingpho is that, although Standard Jingpho has three aspirated stops (/ph, th, kh/), Gauri has only a single aspirated stop (/th/). All instances of /ph/ and /kh/ in Standard Jingpho regularly correspond to fricatives in Gauri (/f/ [f] and /h/ [x]), as in GR *fún* ‘tree’ (SJ *phún*, PTB *\*bul*  $\approx$  *\*pul* STUMP / TREE / ROOT) and GR *há* ‘to be bitter’ (SJ *khá*, PTB *\*ka* BITTER). These correspondences can be explained in terms of spirantization of the proto-phonemes *\*ph-* and *\*kh-* in Gauri.

Gauri also has undergone vowel splits involving PJ *\*-a* (Kurabe forthcoming), such as *\*-a* > *-o* and *\*-a* > *-e*. The former is a sporadic sound change, only observed in some instances after *\*w-* or *\*ʔw-* when it occurred, as in GR *wóy* ‘to be faded’ (SJ *wáy*), GR *wòn* ‘one million’ (SJ *wàn*; possibly from Chinese *wàn* ‘ten thousand’) and GR *ʔwòn* ‘fire’ (SJ *ʔwàn*, PTB *\*b<sup>w</sup>ar*  $\approx$  *\*p<sup>w</sup>ar* FIRE). The latter is observed when *\*-a* is preceded by a palatal consonant and followed by an alveolar stop or nasal, as in GR *ɕén* ‘they two’ (SJ *ɕán*), GR *yét* ‘soon’ (SJ *yát*), GR *gəyèt* ‘to beat’ (SJ *gəyàt*), GR *ʔyèt* ‘to be slow’ (SJ *ʔyàt*) and GR *ʔyén* ‘DUAL’ (SJ *ʔyán*).

As in Standard Jingpho, the final stop *\*-k* has been reduced to *-ʔ* in Gauri, as in GR *cúʔ* ‘breast’ (DG *cúk*, PTB *\*tsyuk*  $\approx$  *\*ɕyuk*), GR *dàʔ* ‘to weave’ (DG *dàk*, PTB *\*tak*  $\approx$  *\*dak*) and GR *dùʔ* ‘neck’ (DG *gədùk*, PTB *\*tuk*  $\approx$  *\*twak* NECK). Gauri also shares an irregular sound change with Standard Jingpho and Nkhum in which some instances of PJ final *\*-k* were irregularly lost, as in GR *jé* ‘to tear’ (PL *\*sék* TEAR) and GR *tò* ‘to be high’ (PL *\*cók* LONG / TALL); compare with DG *jèk* ‘to tear’ and DG *cùk* ‘to be high’.

## 6 Duleng

Duleng is an underdescribed Jingphoish language, spoken in and around Putao (ca. 27°19’N, 97°25’E), Machanbaw (ca. 27°16’N, 97°36’E) and the Nam Tisang valley (ca. 27°05’N, 97°49’E), all of which are located in upper Kachin State, Burma. Leach (1954:309) reports that the estimated population of the Duleng in Putao is 3,000. Yue (2006:68), on the other hand, reports that the number of speakers of Duleng is estimated to be 20,000. Lewis et al. (2014) lists two alternative names for Duleng: Dulong and Dalaung.

The existence of the Dulengs has been known since the late 1800s. Some of the earliest

mentions of them can be found in Gray (1893), Kingdon-Ward (1921:217, 224) and Enriquez (1933:61). Leach (1954:57) describes the Dulengs as follows: they are “Jinghpaw-speaking Kachins inhabiting an area east of the Mali Hka (Irrawaddy) and north of the Shang Hka (Nam Tisang). They are thus the Kachins who are closest neighbours to the Shans of Hkamti Long. They have a widespread reputation as black-smiths. They are *gumlao* in organisation.”

Yue (2006) is the only previous published study on Duleng, and consists of fourteen pages with 270 basic words preceded by a brief sketch of the phonology and grammar. There seems to be some slight phonological variation within Duleng. The diphthong [ei] in Yue (2006)’s variety, for instance, corresponds to [ui] in the Duleng spoken in Machanbaw, on which I have conducted fieldwork. There is no diphthong [ei] in the Duleng of Machanbaw. Note also that although Yue (2006) distinguishes [v] and [w], there is no such distinction in the Duleng of Machanbaw. Both [v] and [w] in Yue (2006) correspond to [w] (therefore /w/) in the Duleng of Machanbaw.

## 6.1 Syllable structure

The canonical syllable structure of Duleng can be represented as  $C_1(C_2)V(C_3)/T$ . All consonant phonemes can occur as  $C_1$  when  $C_2$  is not filled. Only a single consonant (/y/) can occur as  $C_2$ . Complex onsets ( $C_1C_2$ ) may consist of a stop (bilabial, velar) or nasal (bilabial, alveolar) plus /y/. Possible onset clusters are as follows: /py, by, phy, ky, gy, khy, my, ny/. Final consonants which can occur as  $C_3$  are: /p, t, k, ʔ, m, n, ŋ, w, y/.

Duleng has four diphthongs: *ui*, *oi*, *ai* and *au*. Unlike Standard Jingpho, Nkhum and Gauri described above, diphthongs can occur in closed syllables when they are closed with a glottal stop. In this paper, we treat them as /uiʔ/, /oyʔ/, /ayʔ/ and /awʔ/ phonemically in order to maintain consistency with the other Jingphoish languages described above. The final glottal stop after diphthongs can be shown to have developed secondarily in Duleng. Compare such words as DL *gòyʔ* ‘dog’ (SJ *gùy*) and DL *nàyʔ* ‘taro’ (SJ *này*) with PTB \**d-kʷəy-n* DOG and PTB \**m-n(w)ay* YAM / TARO, respectively.

## 6.2 Consonants, vowels and tones

Duleng has twenty consonant phonemes, seven vowel phonemes, four tonemes in open syllables and three tonemes in closed syllables, as listed in Table 4.



Table 4 Phonological inventory of Duleng

	consonants					vowels		
voiceless unaspirated stops	p	t	k	ʔ	High	i	u, u	
voiced stops	b	d	g		Mid	e	ə	o
voiceless aspirated stops	ph	th	kh		Low		a	
voiceless affricate			c					
voiced affricate			j					tones
voiceless fricatives			ç	(h)	High	má		
plain nasals	m	n	ŋ		Mid	ma		
plain liquid		l			Low	mà		
plain glides	w		y		Rising	mǎ		
					High-S	máp		
					Low-S	màp		
					Rising-S	mǎp		

As can be seen, the consonant inventory of Duleng is much smaller than that of Standard Jingpho. This can be explained in terms of a number of phonological mergers which Duleng has undergone; namely, the mergers of PJ *\*ts-* and *\*c-*, *\*ɬ-* and *\*j-*, *\*s-* and *\*ç-*, *\*l-* and *\*r-*, *\*ʔy-* and *\*ʔ*, *\*plain* and *\*preglottalized* sonorants, and *\*-r-* and *\*ʔ* (see below).

As does Standard Jingpho, Duleng preserves the stop series of the proto-language well. One notable exception to this is that PJ *\*d-* has developed into *j-* in Duleng before PJ *\*-i*, which in open syllables is reflected as *-ur* in Duleng, having merged with *\*j-* in this environment, as in DL *jú* ‘egg’ (SJ *dí*, PTB *\*twəy*  $\approx$  *\*dwəy* EGG / WATER / SPIT) and DL *məjú* ‘nose’ (SJ *lədí*, PTB *\*l-di* NOSE from STEDT #807).

Duleng has merged the PJ alveolar and alveolo-palatal affricates in favor of the alveolo-palatal affricates. Compare such pairs as DL *ləcá* ‘one hundred’ (SJ *lətsa*, PTB *\*b-r-gya* HUNDRED) and DL *caŋ* ‘to be black’ (SJ *caŋ*, PTB *\*tyaŋ* BLACK / DARK), and DL *gùmjǎy* ‘sand’ (SJ *ɬàybərù*) and DL *jàʔ* ‘gold’ (SJ *jà*, PTB *\*tsyak* RED / BLOOD / GOLD).

Duleng has undergone a merger of the PJ fricatives *\*s-* and *\*ç-* in favor of *ç-*, resulting in a consonant system which has a single main fricative consonant phoneme. Compare DL *çur* ‘to die’ (SJ *sí*, PTB *\*səy* DIE) with DL *çur* ‘ten’ (SJ *çi*, PTB *\*ts(y)i(y)*  $\approx$  *\*tsyay* TEN).

Duleng has merged the PJ liquids *\*r-* and *\*l-* to yield *l-*, as can be seen in DL *lù* ‘thread’ (SJ *rì*, PTB *\*rey* CANE / RATTAN / ROPE) and DL *məlù* ‘four’ (SJ *məli*, PTB *\*b-ləy* FOUR). Note that Errol Gray, cited in Scott (1900:390), who travelled to Khamti Long (called Bor Khamti by Gray) located near present-day Putao, during 1892 and 1893, records Duleng as *Tureng* (Gray 1893). Francis Kingdon-Ward, who undertook an expedition in upper Kachin State in 1914, on the other hand, records Duleng as *Duleng* (Kingdon-Ward 1921:217, 224). These facts suggest that the sound change *\*r- > l-* may have occurred between about 1892 and 1914. Note also that modern Duleng speakers insist that the word Duleng was formerly pronounced *Dureng*.

The PJ preglottalized glide *\*ʔy-* has been lost in Duleng before front vowels, as in DL *íp* ‘to conceal’ (SJ *ʔyíp*), DL *en* ‘to peel’ (SJ *ʔyen*), and DL *məen* ‘spit’ (SJ *məʔyen*). For more details, see Kurabe (2014).

Duleng has also lost the distinction between plain and preglottalized sonorants, which are distinguished in Standard Jingpho, Nkhum and Gauri, as can be seen in DL *məniŋ* ‘last year’ (SJ *ʔməniŋ*), DL *nyíp* ‘to wither’ (SJ *ʔnyíp*), DL *ŋəm* ‘to remain’ (SJ *ʔŋəm*), DL *nó* ‘mother’ (SJ *ʔnū*) and DL *wá* ‘father’ (SJ *ʔwā*).

The PJ medial *\*-r-* has been lost in Duleng, resulting in a syllable structure, in which only a single consonant, /y/, can occur as the medial. Examples include DL *khàt* ‘to fall’ (SJ *khàt*, PTB *\*kla-k/y/t*  $\approx$  *\*gla-k/y/t* FALL), DL *khur* ‘to be sour’ (SJ *khri*, PTB *\*krəy*  $\approx$  *\*m-kri(y)-t-s* GALL / BILE / SOUR) and DL *phùr* ‘iron’ (SJ *phri*). This innovation may be related to the sound change *\*r- > l-* discussed above, since clusters which take *-l-* as the second element are not allowed at any level of the development of Jingpho.

As noted above, PJ vowel *\*-i* has usually developed into *-u* in open syllables in Duleng, as can be seen in DL *nnu* ‘to laugh’ (SJ *məni*, PTB *\*m-nwi(y)-k* LAUGH), DL *jú* ‘egg’ (SJ *dì*, PTB *\*twəy*  $\approx$  *\*dwəy* EGG / WATER / SPIT) and DL *wù* ‘female’ (SJ *yì*, PTB *\*pwi(y)-n* FEMALE). The PJ *\*-i* in closed syllables, on the other hand, is retained as such, as in DL *myì?* ‘eye’ (SJ *myì?*, PTB *\*mik*  $\approx$  *\*myak* EYE), but it has become *-e* when followed by *\*-t*, as can be seen in such examples as DL *ɕənèt* ‘seven’ (SJ *sənit*, PTB *\*s-ni-s* SEVEN), DL *jèt* ‘urine’ (SJ *jìt*, PTB *\*g-ts(y)i-t/n* URINE), DL *məcét* ‘to comb’ (SJ *məsit*, PTB *\*m-si-t* COMB / RAKE), DL *ɕəlèt* ‘border’ (SJ *jərìt*, PTB *\*rit* DRAW) and DL *ʔəlèt* ‘to be heavy’ (SJ *li*, PTB *\*s-ləy-t*  $\approx$  *\*s-rəy-t* HEAVY).

The PJ vowel *\*-u* has usually been lowered to *-o* in open syllables in Duleng, as in DL *ìmò* ‘sky’ (SJ *ləmù*), DL *ngo* ‘rice’ (SJ *ngu*), DL *nó* ‘mother’ (SJ *ʔnū*) and DL *mo* ‘to be tasty’ (SJ *mu*), although there are exceptions, such as DL *ʔù* ‘bird’ (SJ *ʔù*). Among the

Jingphoish languages treated in this paper, this development is only observed in Duleng.

Finally, note that SJ *-o* corresponds to *-o* or *-u* in Duleng, as can be seen in DL *dùŋ* ‘half’ (SJ *dò*), DL *kúŋ* ‘tooth’ (SJ *koy* ‘tusk’), DL *ɕəlòŋ* ‘to desire’ (SJ *ɕəróŋ*) and DL *khənòŋ* ‘to push’ (SJ *gənóŋ*). The conditioning factors according to which *\*-o* was split into *-o* and *-u* are unknown, and thus *-u* might be reconstructed for Proto-Jingpho. It should be noted, however, that the vowel *-u* is only observed in Duleng, Shang and Dingga, all of which belong to the Northeastern group, and thus the majority rule suggests that the vowel *-u* is an innovation of this group. This seems to be likely given that Duleng, Shang and Dingga have undergone many consonant mergers (see above and Section 7), and the development of the vowel *-u* may be shown to have emerged to compensate for them. At the present moment, what to reconstruct for this correspondence is indeterminable and more investigation is required to solve this issue.

## 7 Dingga

Dingga is a previously unknown Jingphoish language spoken in villages such as Ding Ga, Ding Ga Gabrim, Tsa Gung Ga, Layang Ga, Dai Mare and Mărawt Ga, all of which are located in the area between the Shang Hka and Da Hka rivers in upper Kachin State, Burma (ca. 27°28’N, 97°56’E). The Dingga-speaking population is estimated to be between 2,000 and 3,000, according to my consultant. The name Dingga is a toponym, a place-name that has been extended to serve as the name of a language or dialect (Matisoff ed. 1996:xii), which originates from the place where the Dingga-speaking population is settled.

One of the remarkable characteristics of Dingga is that it does not retain the PJ negative prefix *\*n-* (PTB *\*ma-y* NEGATIVE), which can be found in all the other Jingphoish languages and dialects for which data are available. In Dingga, negation is expressed by initial and tonal alternations of the verb stem (Kurabe 2013a). Dingga is also notable in that it shows the phenomenon of “prefix runs”, a special kind of prefixation, whereby adjacent numerals come to have identical (or very similar) prefixes (Matisoff 1995:213–6). In Dingga, for example, the words for ‘two’ and ‘three’ are *gəni* and *məcúm*, respectively, in isolation. When they are juxtaposed, however, they are pronounced *gəni-gəcúm* with the prefixal first syllable of *məcúm* ‘three’ replaced by that of *gəni* ‘two’.

## 7.1 Syllable structure

The basic syllable structure can be represented as  $C_1(C_2)V(C_3)$  plus a tone. The complex onset may consist of a stop (bilabial, velar) or nasal (bilabial, alveolar) plus /y/, as in Duleng. Possible onset clusters ( $C_1C_2$ ) are as follows: /py, by, phy, ky, gy, khy, my, ny/. There are nine consonants which can occur as the coda: /p, t, k, ʔ, m, n, ŋ, w, y/. As in Duleng, diphthongs can occur in closed syllables when they are closed with a velar or glottal stop, as in *máyk* ‘long ago’ and *gùiyʔ* ‘dog’.

## 7.2 Consonants, vowels and tones

Dingga has twenty-two consonant phonemes, seven vowel phonemes, four tonemes in open syllables and three tonemes in closed syllables, as listed in Table 5.

Table 5 Phonological inventory of Dingga

	consonants					vowels		
voiceless unaspirated stops	p	t	k	ʔ	High	i	u	u, u
voiced stops	b	d	g		Mid	e	ə	o
voiceless aspirated stops	ph	th	kh		Low	a		
voiceless affricate			c					
voiced affricate			j					tones
voiceless fricatives	f	s	ɕ	h	High	má		
plain nasals	m	n		ŋ	Mid	ma		
plain liquid		l			Low	mà		
plain glides	w		y		Rising	mă		
					High-S	máp		
					Low-S	màp		
					Rising-S	măp		

As is the case with Gauri, PJ *\*ph-* and *\*kh-* have developed into *f-* and *h-*, respectively, in Dingga, as can be seen in DG *fúm* ‘tree’ (SJ *phún*, PTB *\*bul* ≈ *\*pul* STUMP / TREE / ROOT) and DG *hìʔ* ‘excrement’ (SJ *khyí*, PTB *\*kləy* EXCREMENT). Note that, although there are exceptions, these developments are usually observed in word-initial position, unlike Gauri, in which PJ *\*ph-* and *\*kh-* have changed to *f-* and *h-* unconditionally

(see Section 5).

As in Duleng, such distinctions as between PJ alveolar and alveolo-palatal affricates, alveolar lateral and retroflex approximants, and plain and preglottalized sonorants have been lost in Dingga. Compare DG *ləcá* ‘one hundred’ (SJ *lətsa*, PTB *\*b-r-gya* HUNDRED) with DG *caŋ* ‘to be black’ (SJ *caŋ*, PTB *\*tsyak* RED / BLACK / GOLD), DG *jim* ‘to be quiet’ (SJ *ɕim*) with DG *jit* ‘urine’ (SJ *jit*, PTB *\*g-ts (y)i-t/n* URINE), DG *ɕəlúŋ* ‘horn’ (SJ *ɲruŋ*, PTB *\*g-ruŋ* HORN / CORNER) with DG *lùŋ* ‘to climb’ (SJ *lùŋ*), and DG *ɲàm* ‘to remain’ (SJ *ɲàm*) with DG *ɲàʔ* ‘fish’ (SJ *ɲá*, PTB *\*s-ɲya* FISH).

As is the case with Duleng, the PJ medial *\*-r-* has been lost in Dingga without any trace, as in DG *hi* ‘to be sour’ (SJ *khri*, PTB *\*m-kri(y)-t-s* GALL / BILE / SOUR). Dingga also shares the phonological development *\*ʔy- > ∅* (before front vowels) with Duleng, as in DG *en* ‘to peel’ (SJ *ʔyen*). As does Duleng, Dingga has the vowel *-u*, which usually corresponds to SJ *-u*, although it is undetermined whether it is a retention or an innovation.

Dingga has undergone a sound change in which the PJ vowel *\*-e* has become *-i* after *\*-y-*, as can be seen in DG *fin* ‘enemy’ (SJ *phyen*) and DG *hiŋ* ‘to be red’ (SJ *khyeŋ*). No similar development is found in the other Jingphoish languages and dialects presented in this paper.

Finally, it is worth noting that Dingga shows a sporadic innovation in which PJ *\*l-* became *d-*, as is demonstrated by such examples as DG *dəgàt* ‘to run’ (SJ *ləgàt*, PTB *\*g-lak* HAND), DG *dəgùt* ‘to steal’ (SJ *ləgú*, PTB *\*r-kəw* STEAL), DG *dəphan* ‘between’ (SJ *ləpran*) and DG *dəmyí* ‘cat’ (NK *lă<sup>31</sup>myí<sup>55</sup>*). As discussed in Matisoff (2006), this kind of interchange between *l* and *d* is observed in many Sino-Tibetan etymologies.

## 8 Numphuk

Numphuk, with a speaker population of about 2,000 (Morey 2007c:14), is spoken in about twenty villages, which include Ingthong, Ketetong, Inthem, Kumsai, Bisa, Wagun 1, Wagun 2, Wagun 3, Wakheth Na, Kherem Bisa, Guju and Giding, all of which are situated along the sides of the river Burhi Dihing in Upper Assam (ca. 27°20’N, 95°42’E), which is called *Numhpuk Hka*, or the Numhpuk Hka river, in Numphuk (Nath 2008:245). The name Numphuk is thus a loconym, which originates from the river valley in which the Numphuk speakers are settled.

Numphuk is one variety of Singpho, which has a total speaking population of around 5,000 to 6,000, and consists of Turung, Numphuk, Diyun and Tieng (Morey 2010a:4, 13). As noted by Hanson (1913:12) and Morey (2010a:4), the name Singpho is the As-

same as the English or British pronunciation of the word Jingpho. Morey (2008:30) notes that the word Singpho means ‘human being’ in Singpho (*sum<sup>4</sup>phoʔ<sup>3</sup>*, *cum<sup>4</sup>phoʔ<sup>3</sup>* or *m<sup>4</sup>phoʔ<sup>3</sup>* in Numphuk). It is noteworthy that, although all the seven Jingphoish languages and dialects described in this paper have cognates for ‘Jingpho’, their semantic referents differ depending on the language or dialect. That is to say, although this word only denotes ‘Jingpho people’ in Standard Jingpho, Nkhum and Gauri, it denotes not only ‘Jingpho people’ but also ‘human being’ in Duleng, Dingga, Numphuk and Turung.

Early English writings suggest that the migration of the Singphos into India does not date back further than the late 1700s. Dalton (1872:9), for example, notes that “The Singphos, like the Khamtis, have settled in Asam within the memory of man. They are said to have first made their appearance in the valley during the rebellion of the Muttuck or Mahamaria sect against the Rajah Gaurinath Singh, about A.D. 1793.” Baines (1893:116) also notes that “There is in the corner of Assam a curious offshoot of the Kákhyîn race, which had its centre at Mogoung, on a tributary of the Irrawaddi....It established itself in Assam near the end of last century, and made slaves of a good many of the Assamese of the neighbouring tribes.”

The description of the syllable structure and phonemic inventory of Numphuk below is based on Morey (2010b).

### 8.1 Syllable structure

The maximal syllable in Numphuk can be represented as  $C_1(C_2)V(C_3)$  plus a tone. Consonant clusters ( $C_1C_2$ ) may consist of a stop (bilabial, velar) plus /r/ (Morey 2010b:4–5). Possible consonant clusters are: /pr, br, phr, kr, gr, khr/. Note that words with a medial /y/ can also be found in Morey (2007b), but they are quite few in number and some of them can be shown to be loanwords. For instance, the word *myaat<sup>2</sup>* ‘to be holy’, which is the only word with /my/ in Morey (2007b), can be shown to be a Burmese loanword. Possible coda consonants ( $C_3$ ) in Numphuk are: /p, t, k, ʔ, m, n, ŋ/. Four diphthongs, *ui*, *oi*, *ai* and *au*, which are represented as such in Morey (2010b), can also be shown to be sequences of a vowel plus a glide coda phonologically, as in Standard Jingpho, since they do not occur in closed syllables.

## 8.2 Consonants, vowels and tones

The phonemic inventory of Numphuk is provided in Table 6, which is based on Morey (2010b:4). Numphuk has twenty-two consonant phonemes, nine vowel phonemes, three tonemes in open syllables and two tonemes in closed syllables. The High-F below indicates High-falling. The consonant /h/ normally occurs in loanwords. Morey (2007b) lists thirteen words beginning with this consonant, some of which can be shown to be loanwords from Tai (Shan) or Burmese, such as NP *hom*<sup>4</sup> ‘to smell good’ (Shan *hɔm*<sup>1</sup>) and NP *heŋ*<sup>1</sup> ‘to be strong’ (Shan *heŋ*<sup>4</sup>).

Table 6 Phonological inventory of Numphuk

	consonants					vowels		
voiceless unaspirated stops	p	t	k	ʔ	High	i		u
voiced stops	b	d	g		Mid	e, (ee)	ə	o, oo
voiceless aspirated stops	ph	th	kh		Low		a, aa	
voiceless affricate			c					
voiced affricate			j					
voiceless fricatives		s		(h)	High-F	ma <sup>5</sup>		
plain nasals	m	n	ɲ	ŋ	Mid	ma <sup>4</sup>		
plain liquids		l	r		Low	ma <sup>1</sup>		
plain glides	w		y		High-S	map <sup>3</sup>		
					Low-S	map <sup>2</sup>		

The consonant inventory of Numphuk is similar to those of Duleng and Dingga since it shares many phonological developments with Duleng and Dingga, namely, the mergers of PJ \*ts- and \*c-,<sup>9</sup> \*ɗ- and \*ʃ-, \*ʎy- and \*ʈ (before front vowels) and \*plain and \*preglottalized sonorants, as can be seen in NP *məcaat*<sup>2</sup> ‘eight’ (SJ *mətsát*, PTB *b-r-gyat*

<sup>9</sup> The merger of PJ \*ts- and \*c- in Singpho (SP) must date back to before late 1800s, since PJ \*ts- is recorded as *ch* in Needham (1889), as in SP *chap* ‘bear’ (SJ *tsáp*), SP *châm* ‘to decay’ (SJ *tsam*), SP *châ* ‘father-in-law’ (SJ *tsâ*), and SP *ching* ‘weed’ (SJ *tsiŋ*). Also note SP *châng* ‘to be light, not heavy’ and SP *châng* ‘to be black’, corresponding to the Standard Jingpho minimal pair SJ *tsaj* ‘to be light, not heavy’ and *caŋ* ‘to be black’.

≈\**b-g-ryat* EIGHT), NP *gaŋ<sup>4</sup>jee<sup>1</sup>* ‘betel’ (SJ *gàŋdè*), NP *ep<sup>3</sup>* ‘to be close together’ (SJ *ʔyép*) and NP *məni<sup>ʔ3</sup>* ‘yesterday’ (SJ *ʔməni*).

Numphuk has merged the PJ fricatives \**ç-* and \**s-* in favor of *s-*. This innovation is not shared by Duleng and Dingga. Compare NP *sii<sup>1</sup>* ‘ten’ (SJ *çi*, PTB \**ts(y)i(y)* ≈\**tsyay* TEN) with NP *sii<sup>1</sup>* ‘to die’ (SJ *si*, PTB \**səy* DIE). As noted by Morey (2007c:28), Needham (1889), a grammar of Singpho, distinguishes *sh* and *s*, as in *shî* ‘ten’ vs. *sî* ‘to die’. This fact may suggest that the merger of PJ \**ç-* and \**s-* does not date back further than the late 1800s, although it is also possible that Numphuk and the Singpho variety described by Needham are not the same.

As is the case with many other Jingphoish languages and dialects presented in this paper, the PJ final \**-k* has become *-ʔ* in Numphuk, as can be seen in NP *pho<sup>ʔ3</sup>* ‘to open’ (DG *fòk*, PTB \**pwa(ŋ/k)* OPEN from STEDT #5704).

Numphuk appears to be in the process of losing the PJ medial consonants \**-y-* and \**-r-*. As noted in Section 8.1, Numphuk has largely lost the PJ medial \**-y-*, as can be seen in NP *peen<sup>1</sup>* ‘to fly’ (SJ *pyen*, PTB \**byam* FLY / RUN) and NP *kheej<sup>1</sup>* ‘to be red’ (SJ *khyej*, PTB \**kyej* RED / BLUSHING). Note also that Numphuk is in the process of losing the PJ medial \**-r-*. That is to say, PJ \**-r-* is lost in some lexical items but retained in others. Compare, for example, NP *khut<sup>3</sup>* ‘to wash’ (SJ *khùt*) with NP *khruu<sup>1</sup>* ‘to burn’ (SJ *khù*). Morey (2007b) lists some examples of free variations between *-r-* and  $\emptyset$ , as in *khrii<sup>1</sup>* ~ *khii<sup>1</sup>* ‘to be sour’ (SJ *khri*), *khrij<sup>5</sup>* ~ *khij<sup>5</sup>* ‘to stay, stop’ (SJ *khrij*) and *ləpran<sup>4</sup>* ~ *ləpan<sup>4</sup>* ‘between’ (SJ *ləpran*). As is discussed in Sections 6 and 7, PJ \**-r-* is lost altogether in Duleng and Dingga.

Numphuk is notable in that it has contrastive vowel length for /a/, /e/ and /o/. Morey (2010b:5) provides such minimal pairs as NP *caaj<sup>1</sup>* ‘to be light in weight’ (SJ *tsaj*, PTB \**r-ya:ŋ* LIGHTWEIGHT) and NP *caj<sup>1</sup>* ‘up’ (SJ *ntsa*, GR *nijtsàŋ*). Length distinction is also found in Turung (see Section 9). As pointed out in Morey (2008:39), Numphuk also distinguishes length in words ending with a glottal stop, as in NP *wa<sup>ʔ2</sup>* ‘pig’ (SJ *wàʔ*, PTB \**p<sup>w</sup>ak* PIG) vs. NP *waa<sup>ʔ2</sup>* ‘to weave a basket’. This feature is not shared by Turung. It is uncertain whether the contrastive vowel length in Numphuk and Turung is an innovation or a retention, and further investigation is required to address this issue.

## 9 Turung

Turung (spelled *Därung* in Hanson 1913) is mainly spoken in three villages in the Titabor area (ca. 26°33’N, 94°13’E), namely, Pathargaon (Na Kthong), Tipomia and Pahukatia,



located in the Assam State of northeastern India. Another part of the Turung-speaking population is distributed in three villages in the Dhonsiri river valley (ca. 26°19'N, 93°57'E), namely, Balipathar, Rengmai and Basapathar, Assam. Turung is spoken by around 1,200 people (Morey 2010a:46–51).

It is noteworthy that, although modern Turung is a variety of Singpho, it has many words of Tai origin and some Turung speakers regard themselves as ethnically Tai.<sup>10</sup> Morey (2010a:69) mentions that “many if not most Turungs have mixed Singpho and Tai ancestry, thus their history is also mixed. Some member of the Turung community prefer to emphasise the Singpho part of their ancestry, some prefer to emphasise the Tai part.” Grierson (1904:64–5) notes that the Turungs were originally a group of Tai, noting that they immigrated into Assam in about 1820 and were taken prisoner by Singphos, and that “During their servitude to the Kachins they entirely forgot their own language, and now only speak that of their conquerors, Singpho.” Hanson (1913:12) presents another story, noting that “There are also some small families such as the *Dārungs* and *Faqueers* who speak *Singpho*, but are of mixed blood....The *Dārungs* have a story that they were for generations held as slaves by the *Dārung* river in the Hukong valley, when the Shans (no doubt under the rule of the Ahoms), ruled that country. Thus their dialect became largely a Shan patois, and they lost many of their Kachin characteristics.” A discussion of the history of the Turungs is also found in Morey (2010a:69–81).

<sup>10</sup> Leach (1954:295–6) also mentions Shans (Tais) who speak Jingpho and are subordinate to a Jingpho chief in Ningbyen, located west of the Hukong valley. He suggests that they are descendants of Shans from a Shan colony on the Tarung river which was founded by a Mogaung Shan prince, Chow Ta Khuen Meng, in the mid 18th century. The connection between this group and the Turungs is unknown.

It is not surprising that some modern Jingpho speakers were originally Shans (Tais) or vice versa. Leach (1954) reports cases in which Shans became Jingphos or Jingphos became Shans (*sam tai*). He concludes that tribes who spoke dialects of Jingpho, such as the Khaphok, Khalang, Nogmung, N'Tit and Pangsu, reported in the early English writings such as Wilcox (1832) and Barnard (1925, 1934), were originally Jingphos who have been absorbed into Shans (Leach 1954:39–40, 293–4). Note that the first syllable of *Khaphok* denotes ‘serf’ and the second ‘Jingpho’ in Khamti Shan. The word thus can be translated ‘Slave-Kachin’ (ibid., pp.39–40), or ‘Slave-Jingpho’. The autonym of the Nogmung, which is *Sam-hpyen*, as well as that of both the N'Tit and Pangsu, *Share*, imply that “these low-class Shans are of Jingpho Kachin origin” (ibid., p.40), since *Sam-hpyen* denotes ‘Shan mercenary soldier’ and *Share* ‘hired soldier’, respectively, in Jingpho. Mentions of the Khaphok, Khalang, Nogmung and Pangsu are also found in Scott (1900:390–2), although it treats the Pangsu and Nogmun as clans of the Mishmis.

The phonological description of Turung provided below is based on Morey (2010a).

## 9.1 Syllable structure

The maximal syllable in Turung can be represented as  $C_1(C_2)V(C_3)$  plus a tone. Turung has six main consonant clusters, namely, /pr, phr, br, kr, khr, gr/, with three marginal clusters: /py, ky, khy/. Coda consonants are as follows: /p, t, k, ʔ, m, n, ŋ/. As in Standard Jingpho, diphthongs, *ui*, *oi*, *ai* and *au*, can be shown to be sequences of a vowel plus a glide coda phonologically, since they do not occur in closed syllables.

## 9.2 Consonants, vowels and tones

The phonemic inventory of Turung is presented in Table 7, based on Morey (2010a). Turung has twenty-two consonant phonemes and nine vowel phonemes, as well as three tonemes both in open and closed syllables.

Table 7 Phonological inventory of Turung

	consonants					vowels		
voiceless unaspirated stops	p	t	k	ʔ	High	i		u
voiced stops	b	d	g		Mid	e, ee	ə	o, oo
voiceless aspirated stops	ph	th	kh		Low		a, aa	
voiceless affricate			c					
voiced affricate			j					tones
voiceless fricatives		s		(h)	High-falling	ma <sup>2</sup>		
plain nasals	m	n	ɲ	ŋ	Mid	ma <sup>3</sup>		
plain liquids		l	r		Low	ma <sup>1</sup>		
plain glides	w		y		High-S	map <sup>2</sup>		
					Mid-S	map <sup>3</sup>		
					Low-S	map <sup>1</sup>		

As demonstrated in Morey (2010a:179), Turung has three tonal contrasts in closed syllables, as evidenced by such a minimal set as TR *jaʔ<sup>1</sup>* ‘gold’ (SJ *jà*), TR *jaʔ<sup>2</sup>* ‘to be hard’ (SJ *jàʔ*) and TR *jaʔ<sup>3</sup>* ‘fish trap’ (SJ *jàʔ*).

The segmental inventory of Turung is the same as that of Numphuk as presented in

Section 8.2, sharing many phonological innovations with Numphuk, which are: PJ  $*ts-$   $> c-$ ,  $*tʃ-$   $> j-$ ,  $*ɕ-$   $> s-$ ,  $*ʔy-$   $> \emptyset$  (before front vowels),  $*preglottalized\ sonorants$   $>$  plain sonorants,  $*-y-$   $> \emptyset$  and  $*-k$   $> -ʔ$ . These are exemplified by TR *ciʔ*<sup>1</sup> ‘medicine’ (SJ *tsi*, PTB  $*r-tsəy$  MEDICINE / JUICE / PAINT), TR *jet*<sup>1</sup> ‘to be clever’ (SJ *dət*), TR *san*<sup>2</sup> ‘flesh’ (SJ *càn*, PTB  $*sya-n$  ANIMAL / BODY / FLESH / MEAT), TR *mæen*<sup>2</sup> ‘spit’ (SJ *məʔyen*), TR *kheerj*<sup>3</sup> ‘to be red’ (SJ *khyeŋ*, PTB  $*kyeŋ$  RED / BLUSHING), TR *mənij*<sup>3</sup> ‘last year’ (SJ *ʔmənij*), and TR *waʔ*<sup>2</sup> ‘pig’ (DG *wàk*, PTB  $*p^wak$  PIG).

Turung has contrastive vowel length for /a/, /e/ and /o/ in words with nasal codas. Morey (2010a:142) provides such minimal pairs as TR *peen*<sup>3</sup> ‘to fly’ (SJ *pyen*, PTB  $*byam$  FLY) vs. TR *pen*<sup>3</sup>*pen*<sup>2</sup> ‘to be flat’ (SJ *phún-pyen* ‘plank; lit. wood-flat’, PTB  $*plyaŋ$  FLAT SURFACE / PLANK), TR *sərooŋ*<sup>3</sup> ‘tiger’ (SJ *ɕəro*, PTB  $*s/k-roŋ$  CAT / WILDCAT) vs. TR *səroŋ*<sup>3</sup> ‘to be eager’ (SJ *ɕəróŋ* ‘to like’), and TR *caaŋ*<sup>3</sup> ‘to be light in weight’ (SJ *tsaŋ*, PTB  $*r-ya:ŋ$  LIGHTWEIGHT) vs. TR *caŋ*<sup>3</sup> ‘to be black’ (SJ *caŋ*, PTB  $*tsyak$  RED / BLACK / GOLD). As noted in Section 8.2, it is uncertain whether contrastive vowel length is an innovation or a retention.

## 10 Summary

This paper offered the phonemic inventories and syllable structures of the seven Jingphoish languages and dialects for which data are available. We also provided some accounts of how these phonemic inventories were derived from that of their ancestor. Compared with other Jingphoish languages and dialects, it can be shown that Standard Jingpho preserves the segmental system of the proto-language fairly well, distinguishing a number of segments which have merged in some other Jingphoish varieties. As shown in this paper, languages and dialects belonging to the Northern Jingphoish group have undergone drastic restructurings of their segmental inventories, merging a number of proto-segments.

This paper also dealt with sound changes in these seven Jingphoish languages and dialects, which are summarized below. As noted in various sections of this paper, some sound changes are shared by two or more languages/dialects. The sound change PJ  $*-k$   $> \emptyset$ , which is shared by Standard Jingpho, Nkhum and Gauri, and  $*-ŋ$   $> \emptyset$ , which is shared by Standard Jingpho and Nkhum, are highly likely to indicate close relationships between Standard Jingpho, Nkhum and Gauri, and between Standard Jingpho and Nkhum, respectively, since they are irregular sound changes observed in phonologically and semantically unrelated lexical items. It should be noted, however, that the shared sound changes discussed in this paper do not always indicate close relationships, because many of them are

typologically common and may easily have occurred independently.

### Summary of sound changes

1. PJ \**ph-* > *f-* (in GR and DG)
2. PJ \**kh-* > *h-* (in GR and DG)
3. PJ \*voiced > voiceless obstruents (in NK)
4. PJ \**d-* > *j-/\_\_\_\*i* (in DL)
5. PJ \**ts-* > *c-* (in DL, DG, NP and TR)
6. PJ \**ɬ-* > *j-* (in DL, DG, NP and TR)
7. PJ \**ts-* > *s-* (in younger generation; in SJ)
8. PJ \**ɬ-* > *z-* (in younger generation; in SJ)
9. PJ \**s-* > *ɕ-* (in DL)
10. PJ \**ɕ-* > *s-* (in NP and TR)
11. PJ \*preglottalized > plain sonorants (in DL, DG, NP and TR)
12. PJ \**ŋ-* > *n-/\_\_\_\*y* (in SJ, GR, DL, DG, TR and NP)
13. PJ \**r-* > *l-* (in DL and DG)
14. PJ \**r-* > *ʒ-* (in NK)
15. PJ \**l-* > *d-* (sporadic; in DG)
16. PJ \**ʔy-* > *∅/\_\_\_\*i, \*e* (in DL, DG, NP and TR)
17. PJ \**w-* > *y-/\_\_\_\*i, \*e* (in SJ and NK)
18. PJ \**-k* > *-ʔ* (in SJ, NK, GR, DL, NP and TR)
19. PJ \**-k* > *∅* (sporadic; in SJ, NK and GR)
20. PJ \**-ŋ* > *∅* (sporadic; in SJ and NK)
21. PJ \**-r-* > *∅* (in DL, DG and NP)
22. PJ \**-r-* > *-y-* (sporadic; in SJ, NK, DL, DG, TR and NP)
23. PJ \**-y-* > *∅* (in NP and TR)
24. PJ \*plain > creaky vowels (after voiceless obstruents; in NK)
25. PJ \**-a* > *-e/\*ɕ, \*y \_\_\_\*t, \*n* (in GR)
26. PJ \**-a* > *-o/\*w \_\_\_* (sporadic; in GR)
27. PJ \**-e* > *-i/\*y \_\_\_* (in DG)
28. PJ \**-i* > *-e/\_\_\_\*t* (in DL)
29. PJ \**-i* > *-u/\_\_\_#* (in DL)
30. PJ \**-u* > *-o/\_\_\_#* (in DL)

This paper did not discuss how the tonemes of each language and dialect have been

derived, due to the complexity of tonal correspondences. This paper also pointed out the indeterminacy of reconstruction involving the vowel *-u* in Duleng and Dingga, and the contrastive vowel length in Numphuk and Turung. Further studies based on data from more fieldwork are required in order to address these questions.

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## ジンポー語群の七言語と方言の音素目録

### 要旨

ジンポー語群の言語および方言は、シナ・チベット語族チベット・ビルマ語派ジンポー・ルイ語支(または語群)に属し、東北インドから北部ビルマを経て中国雲南省西南部にかけて分布する。本稿の目的は、ジンポー語群に属する七種の言語または方言の音素目録および音節構造を提示し、これらの音素体系(特に子音と母音)がジンポー祖語からいかにして発達したか説明を試みる。結論として、北部ビルマの南部地域に分布する標準ジンポー語が祖語の音素体系をよく保持していること、また、北部ビルマの北部地域から東北インドにかけて分布するグループにおいて音素体系の大きな改新が起きたことを示す。